a device configured to identify IP packets and ATM cells in the streams of input data;

an IP packet forwarding facility for directing the identified IP packets to the output ports based on the address information contained in the IP packets; and

an ATM cell forwarding facility for directing the identified ATM cells to the output ports based on the address information contained in the ATM cells.

REMARKS

In the non-final Office Action, the Examiner requests that the missing application serial numbers by provided on page 1 of the specification; rejects claims 1, 3, 6, 7, 11, 14, 15, 19, and 20 under 35 U.S.C. § 102(e) as anticipated by LEA (U.S. Patent No. 6,115,373); rejects claims 2, 15 (presumably 16), and 18 under 35 U.S.C. § 103(a) as unpatentable over LEA; rejects claims 5, 12, and 13 under 35 U.S.C. § 103(a) as unpatentable over LEA in view of VOGEL (U.S. Patent No. 6,075,788); and rejects claims 4, 8-10, and 17 under 35 U.S.C. § 103(a) as unpatentable over LEA in view of VOGEL, and further in view of ISOYAMA et al. (U.S. Patent No. 6,418,145).

By way of this amendment, Applicant proposes amending Fig. 4 to correct a typographical error. Applicant amends the specification to improve form. Applicant cancels claim 4 and amends claims 1, 5-8, 11, 12, and 14 to improve form. Claims 1-3 and 5-20 are pending.

Applicant proposes to amend Fig. 4 to correct a typographical error. The proposed change is marked in red in the attached Request for Approval of Drawing

Change. Applicant respectfully requests that the Examiner approve the correction to Fig. 4.

In the Office Action, the Examiner requests that the missing application serial numbers be provided on page 1 of the specification. In response, Applicant amends page 1 of the specification to provide the missing application serial numbers. Applicant also amends page 10 of the specification to correct a typographical error.

The Examiner rejects claims 1, 3, 6, 7, 11, 14, 15, 19, and 20 under 35 U.S.C. § 102(e) as allegedly anticipated by LEA; rejects claims 2, 16, and 18 under 35 U.S.C. § 103(a) as unpatentable over LEA; rejects claims 5, 12, and 13 under 35 U.S.C. § 103(a) as unpatentable over LEA in view of VOGEL; and rejects claims 4, 8-10, and 17 under 35 U.S.C. § 103(a) as unpatentable over LEA in view of VOGEL, and further in view of ISOYAMA et al. Applicant respectfully traverses these rejections with respect to the amended claims.

At the outset, Applicant notes that ISOYAMA et al. is not a valid prior art reference. The present application was filed on June 18, 1999 and claims priority to U.S. Provisional Application No. 60/090,028, filed June 19, 1998. ISOYAMA et al. has an application filing date of December 17, 1998, which is after the effective filing date of the present application. Moreover, Applicant notes that ISOYAYMA et al.'s foreign priority date cannot be used to antedate Applicant's effective filing date (see M.P.E.P. § 2136.03). Accordingly, ISOYAMA et al. is not a valid prior art reference.

For at least the foregoing reasons, Applicant requests that the rejection of claims 4, 8-10, and 17 under 35 U.S.C. § 103(a) as allegedly unpatentable over LEA in view of VOGEL, and further in view of ISOYAMA et al. be reconsidered and withdrawn.

LEA is directed to an information network architecture that can handle ATM and IP traffic (Abstract).

VOGEL is directed to a single-chip SONET physical layer device (Abstract).

In contrast, Applicant's amended claim 1 recites an input interface configured to receive a data stream from a single port, identify Asynchronous Transfer Mode (ATM) cells and Internet Protocol (IP) packets within the data stream, and forward the ATM cells and IP packets; an IP packet forwarding facility configured to receive IP packets from the input interface, and forward the IP packets toward their destinations; and an ATM cell switching facility configured to receive ATM cells from the input interface, and switch the ATM cells toward their destinations. LEA does not disclose this combination of features.

For example, LEA does not disclose an input interface that is configured to receive a data stream from a single port, identify ATM cells and IP packets within the data stream, and forward the ATM cells and IP packets. This feature is similar to the feature recited in canceled claim 4. With respect to that claim, which was rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over LEA in view of VOGEL, and further in view of ISOYAMA et al., the Examiner appears to admit that LEA and VOGEL do not disclose this feature and relies on Fig. 5 of ISOYAMA et al. for allegedly disclosing this feature (Office Action, pg. 4). As set forth above, however, ISOYAMA et al. is not a valid prior art reference. As such, Applicant submits, in accordance with the Examiner's admission, that the above-described feature is not taught by the art of record.

For at least the foregoing reasons, Applicant submits that LEA does not anticipate claim 1. Applicant further submits that claim 1 is patentable over LEA and VOGEL, whether taken alone or in any reasonable combination.

Claims 2, 3, and 5-7 depend from claim 1. Applicant submits that these claims are patentable over LEA and VOGEL, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1. Moreover, these claims recite additional features not disclosed by LEA or VOGEL.

For example, claim 5 recites that the data stream includes SONET frames and that the device further comprises a SONET deframer for deframing the SONET frames in the data stream. The Examiner admits that LEA does not disclose these features and relies on element 46 in Fig. 3 of VOGEL for allegedly disclosing these features (Office Action, pp. 3-4). Applicant submits that VOGEL does not disclose or suggest the recited features.

Element 46 in Fig. 3 of VOGEL corresponds to a SONET frame block. As described in col. 6, lines 1-3, of VOGEL, SONET frame block 46 receives ATM cells from Enhanced UTOPIA interface block 42 and places the cells in the synchronous payload envelope (SPE) of a SONET frame. Therefore, SONET frame block 46 does not deframe the SONET frames in a data stream, as recited in Applicant's claim 5, but rather, forms SONET frames.

Even assuming, for the sake of argument, that VOGEL discloses the features of claim 5, Applicant submits that one skilled in the art would not have been motivated to incorporate a SONET deframer for deframing the SONET frames in the data stream into the LEA disclosure absent impermissible hindsight.

With respect to motivation, the Examiner alleges "[i]t would have been obvious to a person having ordinary skill in the art by the time the invention was made to add the device taught by Vogel in front of the device taught by Lea so that it can process SONET data frames" (Office Action, pg. 4). The disclosure of LEA does not support the Examiner's allegation. The disclosure of LEA does not disclose or suggest the desire to incorporate a SONET deframer. Applicant asserts that one of ordinary skill in the art would not look to incorporate VOGEL's alleged SONET deframer into LEA's information network architecture, absent impermissible hindsight. Applicant submits that the Examiner's motivation is impermissibly gleaned from Applicant's own disclosure.

For at least these additional reasons, Applicant submits that claim 5 is patentable over LEA and VOGEL, whether taken alone or in any reasonable combination.

Independent claims 8, 11, and 14 have been amended to include features similar to those recited above for independent claim 1. Therefore, Applicant submits that these claims are patentable over LEA and VOGEL, whether taken alone or in any reasonable combination, for reasons similar to those given above with respect to claim 1.

Claims 9 and 10 depend from claim 8. Applicant submits that these claims are patentable over LEA and VOGEL, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8.

Claims 12 and 13 depend from claim 11. Applicant submits that these claims are patentable over LEA and VOGEL, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 11. Moreover, claim 12 recites features similar to those described above with respect to claim 5. Therefore, Applicant submits that claim 12 is patentable over LEA and VOGEL, whether

taken alone or in any reasonable combination, for reasons similar to those set forth above with respect to claim 5.

Claims 16-20 depend from claim 14. Applicant submits that these claims are patentable over LEA and VOGEL, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 14.

In view of the foregoing amendment and remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectively submitted,

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ATTACHMENT SHOWING CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning at page 1, line 5, has been amended as follows:

This application claims the benefit of priority under 35 U.S.C. 119(e) to US Provisional Application Serial No. 60/090,028, filed June 19, 1998, and is related to US Patent Application No. 09/237,128, filed January 25, 1999, and entitled "NETWORK PACKET FORWARDING LOOKUP WITH A REDUCED NUMBER OF MEMORY ACCESSES," US Patent Application No. 09/336,090, filed June 18, 1999, and entitled "AN INTERCONNECT NETWORK FOR OPERATION WITHIN A COMMUNICATION NODE," US Patent Application No. 09/336,311, filed June 18, 1999, and entitled "A QUALITY OF SERVICE FACILITY IN A DEVICE FOR PERFORMING IP FORWARDING AND ATM SWITCHING," and US Patent Application No. 09/335,947, filed June 18, 1999, and entitled "METHOD AND SYSTEM FOR ENCAPSULATING/DECAPSULATING DATA ON A PER CHANNEL BASIS IN HARDWARE". The entire contents of each of said application is hereby incorporated by reference.

The paragraph at page 10, line 14, has been amended as follows:

The line cards 53 may have SONET multiplexers, such as multiplexers 50 and 52 positioned at the input of the input ports for the line cards to multiplex the incoming tributary data streams into OC-48 data streams. In the example depicted in Figure 4, SONET multiplexer 50 multiplexes 4 OC-12 data streams into an OC-48 data stream. Control processor [64 control] 65 oversees operation of the line cards and 53, 55, 57 and

59 interconnect 62. Demultiplexers 50 and 52 are positioned at the feeds into the output ports to take OC-48 output from the line card and split it into constituent tributaries, such as OC-12, OC-3 or DS-3 tributaries.

IN THE CLAIMS:

Claims 1, 5-8, 11, 12, and 14 have been amended as follows:

1. (Amended) A device for directing [input] data toward destinations, comprising:

an input interface configured to:

receive a data stream from a single port,

identify Asynchronous Transfer Mode (ATM) cells and Internet Protocol (IP) packets within the data stream, and

forward the ATM cells and IP packets;

an [Internet Protocol (IP)] IP packet forwarding facility [for] configured to:

receive IP packets from the input interface, and

[forwarding] forward the IP packets [in the input data] toward their destinations; and

an [Asynchronous Transfer Mode (ATM)] ATM cell switching facility [for] configured to:

receive ATM cells from the input interface, and

[switching] switch the ATM cells [in the input data] toward their destinations.

5. (Amended) The device of claim 1 wherein the [input data contains] data stream includes synchronous optical network (SONET) frames and wherein the device further comprises a SONET deframer for deframing the SONET frames in the [input] data stream.

6. (Amended) The device of claim 1 wherein the device includes output ports for outputting data and wherein the ATM cell switching facility further comprises an ATM cell lookup for identifying to which of the output ports to direct the ATM cells [in the input data toward,] based on address information contained in the ATM cells.

7. (Amended) The device of claim 1 wherein the device includes output ports for outputting data and wherein the IP packet forwarding facility further comprises an IP packet lookup for identifying to which of the output ports to direct the IP packets [in the input data toward] based on address information contained in the IP packets.

8. (Amended) An apparatus for directing input toward destinations, comprising:

input ports for receiving [input] data streams;

output ports for outputting data units; and

a director coupled to a selected one of the input ports [for] and configured to:

identify layer 2 data units and layer 3 data units in a data stream received at the selected input port,

[directing the input received at the selected input port to the output ports, said director directing] direct layer 2 data units encapsulated by an OSI layer 2 protocol to the output ports based on address information in the layer 2 data units, and

[directing] direct layer 3 data units encapsulated by [a] an OSI layer 3 protocol to the output ports based on address information in the layer 3 data units.

11. (Amended) In a device for directing input data traffic received on input ports to output ports, a method comprising [the steps of]:

receiving a data stream at one of the input ports;

identifying Internet Protocol (IP) packets and Asynchronous Transfer Mode (ATM) cells in the received data stream;

[providing an Internet Protocol (IP) lookup for identifying where to a direct an IP packet that is received on a selected input port] directing an identified IP packet that is received on the one input port to at least one of the output ports based on an IP lookup operation; and

[providing an Asynchronous Transfer Mode (ATM) lookup for identifying where to direct an ATM cell that is received on the selected input port] directing an identified ATM cell that is received on the one input port to at least one of the output ports based on an ATM lookup operation[;

receiving a unit of input data at the selected input port;

where the unit of data is an ATM cell, using the ATM lookup to identify

which of the output ports to direct the unit of data; and

where the unit of data is an IP packet, using the IP lookup to identify which of the output ports to direct the unit of data].

12. (Amended) The method of claim 11 wherein the device includes a Synchronous Optical Network (SONET) deframer and wherein the SONET deframer is used to deframe any SONET frames in the [input data traffic] data stream received at the [selected] one input port.

14. (Amended) A device for directing both Internet Protocol (IP) packets containing address information identifying destinations and Asynchronous Transfer Mode (ATM) cells containing address information identifying destination toward their destinations, comprising:

input ports for receiving streams of input data;

output ports for outputting streams of data;

line cards for directing input data received at the input ports to the output ports, each said line card including:

a device configured to identify IP packets and ATM cells in the streams of input data;

an IP [packets] packet forwarding facility for directing the identified IP packets [in the input data] to the output ports based on the address information contained in the IP packets; and

an ATM cell forwarding facility for directing the identified ATM cells [in the input data] to the output ports based on the address information contained in the ATM cells.